A Plea for a Federal Commission on Tuberculosis

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The interest of life insurance companies in the prevention of tuberculosis can best be indicated by the facts of their mortality statistics. In the year 1914, the Metropolitan Life Insurance Company paid in its Industrial Department 163,339 claims on the lives of 113,989 people, amounting to $21,449,401. Of these, 27,928 claims on the lives of 19,865 people, amounting to $3,949,421, were paid on individuals who died from pulmonary or other forms of tuberculosis. Including mortuary bonuses the figure was $4,218,139. It is probable that the experience of other Industrial life insurance companies is quite similar to that of the Metropolitan. According to the Insurance Year Book there were in force at the end of 1914, 31,134,303 Industrial insurance policies, of which 13,588,050, or 43.6 per cent. were carried by the Metropolitan. On this basis, Industrial insurance companies, during the year 1914, paid claims on the lives of nearly 46,000 working men and other members of their families amounting to over $9,000,000 for deaths due to tuberculosis.

It will be seen from the above that it is desirable from the insurance standpoint to reduce mortality from tuberculosis, and if such an ideal could ever be obtained, to eradicate the disease entirely. If the payment of death claims could be postponed, the ultimate result would be a reduction in the cost of insurance. Possibilities of such postponement with respect to tuberculosis are large. Of the total deaths from tuberculosis in the year 1914 in the Metropolitan experience 70 per cent. were between ages 15 and 44. Tuberculosis formed 37 per cent. of all the deaths between these ages. If the disease could be eliminated or materially reduced in extent it is probable that more individuals would die from diseases characteristic of older life, such as the cardio-vascular diseases. The tuberculosis problem from the standpoint of life insurance companies is, as you will see from the above, primarily economic in character. Reduction in mortality from tuberculosis or

reduction in the incidence of disease spells, in the long run, cheaper insurance.

The mortality experience of life insurance companies, if it could be assembled, would bring out many interesting facts regarding tuberculosis which would offer much food for thought. I am unable to offer you to-day any experience other than the one of the Company with which I am connected, but I am of the impression that this experience would be a counterpart of the experience of the other companies. For this reason it can be taken as a measure of the conditions which exist among the element of the population insured with the Industrial companies. The advantage of these statistics is that they represent definite classes of the population by age-period, sex, race and occupation. For this reason the data will probably be as reliable as the vital statistics of the Registration Area of the United States, although they are not so extensive as to numbers.

I shall quote from Table 1, showing the decline in the Metropolitan Life Insurance Company's white mortality from seven principal causes of death for the year 1914 as compared with the year 1911. The statistics for tuberculosis are very interesting. They show that within the short period of three years the death rate from tuberculosis in the Company's experience dropped from 208.7 per hundred thousand to 189.6 per hundred thousand, or a reduction in the rate of 9.1 per cent. These figures supplement those for the Registration Area for the years 1901 to 1911, which show a rate in 1911, 83 per cent. of that in 1901. All of this indicates that the campaign of education which has been carried on for over a decade is bearing and has borne fruit. It is fairly safe to predict that the experience of the next three years will show a further reduction in the tuberculosis death rate of the country and of the life insurance companies.

If we analyse these figures according to age, sex, color, occupation and locality, or compare them with the decline in death rates from other diseases, we find several interesting facts that are well worth our careful attention and study. While it is true, as stated above, that in our experience the death rate from tuberculosis has declined 9.1 per cent., we find, as will be seen from the table below, that reductions in death rates have been even more marked in certain other well-known diseases. For example, the reduction in three

years in the death rate from typhoid fever was 30.2 per cent., from acute infectious diseases of children 19.7 per cent., from acute and chronic bronchitis 23.3 per cent., from all forms of pneumonia 13 per cent., from cirrhosis of the liver 17.5 per cent. It is possible that the anti-tuberculosis campaign may have contributed to these reductions. To the insurance company the question naturally arises: Why should the reduction in the death rate from tuberculosis be less than from other diseases mentioned? Has the campaign for the prevention of other infectious diseases been carried on more effectively than the campaign against tuberculosis? Are there other underlying reasons and causes which have brought about a greater decline in one disease than in the other?

TABLE 1

NUMBER AND PERCENTAGE OF DEATHS FROM CERTAIN CAUSES, SHOWING IMPROVEMENT IN MORTALITY—WHITE LIVES

METROPOLITAN INDUSTRIAL PREMIUM PAYING BUSINESS, 1911 AND 1914

CAUSE OF DEATH	1914			1911			Per cent. Reduction in 3 Years
	No. of Deaths	% of Total Deaths	Rate per 100,000	No. of Deaths	% of Total Deaths	Rate per 100,000	
Typhoid fever	1106	1.3	13.2	1306	1.6	18.9	30.2
Acute infectious diseases of childhood (measles, scarlet fever, whooping cough, diphtheria and croup)	4160	4.8	40.7	4243	5.3	50.7	19.7
Tuberculosis (all forms)	14274	16.3	189.6	13221	16.6	208.7	9.1
Acute and chronic bronchitis	892	1.0	12.5	976	1.2	16.3	23.3
Pneumonia (all forms)	7700	8.8	100.8	7335	9.2	115.8	13.0
Cirrhosis of the liver	1128	1.3	16.5	1142	1.4	20.0	17.5
External causes	6963	8.0	88.8	6467	8.1	99.9	11.1
TOTAL ABOVE CAUSES	36223	41.5	462.2	34690	43.5	530 3	12.8

A similar study of the death rates for colored lives insured with the Metropolitan brings out equally interesting data. In this group, the reduction in the death rate from typhoid fever for the three years studied, has been 27.7 per cent. as compared with 30.2 per cent. for white lives. Acute infectious diseases of children show a decline in the death rate of 23.2 per cent., whereas among whites the reduction was only 19.7 per cent. Pneumonia shows a reduction of 14.5 per cent. as compared with 13 per cent. for whites. But when we consider tuberculosis, we find a decline of only 2.8 per cent. as compared with 9.1 per cent. for white lives. The question arises: Why should the reduction in death rates for typhoid fever, infectious diseases of children and pneumonia be fairly close for these

two race groups of our policy-holders, and the decline in the death rate from tuberculosis be so disproportionate? If the living and working conditions which bring about high death rates from tuberculosis among negroes maintain, why have they not exercised their influence on other diseases? Or, is it possible that these conditions affect tuberculosis only?

If we study the tuberculosis death rate in terms of age, sex and color classes, other interesting facts are at once observed and are shown in Table 2. Comparing the death rates given for the two years 1911 and 1914, it is found that while there has been a decline in the death rate for all ages for white males, white females and colored females, there has been an increase in the death rate among colored males. If we consider white males separately, we find there has been a decline in the death rate at all ages, except between ages 1 and 5, and ages 45 and 54. Similarly, among white females there has been a decrease in the death rates in all ages except between ages 10 and 14, where there has been an increase of 5.1 per cent. The increase in the death rate from tuberculosis among colored males at all ages is accounted for by the marked increases between ages 25 and 54, the increase being 6 per cent. between ages 25 and 34, 15 per cent. between ages 35 and 44, and 10.3 per cent. between ages 45 and 54. If we attempt to explain this increase on occupational grounds, we are at once confronted by the fact that at the same ages among white males there has been a decrease between ages 25 and 44, whereas at ages 45 to 54 there has been an increase in the death rate of white males corresponding almost with the increase among colored males. Again, if we study the death rate among colored females, we find a decrease at all ages excepting ages 15 to 19, where there has been an increase of 2.6 per cent., and at ages 45 to 54, where there has been an increase of 8 per cent.

These peculiar facts raise questions to life insurance companies which are difficult to answer. It is difficult to understand why white girls between ages 10 and 14 should show a higher death rate in 1914 than in 1911, or why there should be an increase in the death rate among colored men between the ages 25 and 54 (particularly in view of the fact that the death rate among colored males, as is well known, has always been considerably higher than among white males).

If the campaign for the prevention of tuberculosis had been uniform in its effects, it would have followed that a reduction

TABLE 2.

MORTALITY FROM **TUBERCULOSIS—ALL FORMS,** 1914 COMPARED WITH 1911. CLASSIFIED BY COLOR, SEX AND AGE PERIOD.

METROPOLITAN LIFE INSURANCE COMPANY—INDUSTRIAL DEPARTMENT—PREMIUM PAYING BUSINESS.

AGE PERIOD.	PERSONS.			WHITE MALES.			WHITE FEMALES.			COLORED MALES.			COLORED FEMALES.		
	Rate per 100,000.		Per cent. 1914 of 1911 Rate.	Rate per 100,000.		Per cent. 1914 of 1911 Rate.	Rate per 100,000.		Per cent 1914 of 1911 Rate.	Rate per 100,000.		Per cent. 1914 of 1911 Rate.	Rate per 100,000.		Per cent. 1914 of 1911 Rate.
	1914.	1911.		1914.	1911.		1914.	1911.		1914.	1911.		1914.	1911.	
All ages	217.6	236.8	*91.9*	237.1	253.5	*93.5*	152.1	172.2	*88.3*	446.4	434.9	*102.6*	394.4	424.7	*92.9*
Under 5	90.9	97.0	*93.7*	81.2	76.7	*105.9*	77.3	81 2	*95.2*	264.1	343.5	*76.9*	236.2	269.2	*87.7*
5 to 9	38.2	46.1	*82.9*	27.1	27.4	*98.9*	30.6	37.4	*81.8*	128.8	172.6	*74.6*	155.0	187.3	*82.8*
10 to 14	48.5	52.5	*92.4*	21.6	22.0	*98.2*	41.2	39.2	*105.1*	138.2	158.1	*87.4*	264.9	314.1	*84.3*
15 to 19	156.8	181.0	*86.6*	86.1	114.0	*75.5*	134.3	156.0	*86.1*	412.9	436.1	*94.7*	644.8	628.3	*102.6*
20 to 24	290.3	334.5	*86.8*	247.5	297.2	*83.3*	238.1	264.0	*90.2*	584.3	623.4	*93.7*	672.0	749.6	*89.6*
25 to 34	349.6	384.5	*90.9*	399.9	432.3	*92.5*	251.1	294.6	*85.2*	596.4	562.4	*106.0*	505.4	521.5	*96.9*
35 to 44	357.5	405.9	*88.1*	564.3	616.8	*91.5*	209.8	261.9	*80.1*	566.3	492.6	*115.0*	316.6	385.3	*82.2*
45 to 54	292.0	283.4	*103.0*	508.6	463.8	*109.7*	150.3	158.9	*94.6*	522.7	474.1	*110.3*	256.3	237.4	*108.0*
55 to 64	236.3	255.1	*92.6*	390.1	391.0	*99.8*	135.3	153.0	*88.4*	446.7	459.2	*97.3*	181.1	246.9	*73.3*
65 to 74	167.2	199.5	*83.8*	240.1	308.2	*77.9*	107.2	129.9	*82.5*	221.7	332.0	*66.8*	304.2	150.6	*202.0*
75 and over	170.6	189.2	*90.2*	197.9	218.4	*90.6*	152.1	146.2	*104.0*	406.5	291.8	*139.3*	71.6	464.8	*15.4*

in the death rate would have been shown at all ages for both sexes and for negroes as well as whites. The question which I propound is this: What explanation can be offered for the irregularities in the death rate above indicated?

Studied from the standpoint of occupation, tuberculosis mortality again offers significant data as indicated in Table 3. Experience of the Metropolitan shows that 20.5 per cent. of the deaths of occupied white males, ages 15 and over, are due to tuberculosis of the lungs, whereas 35 per cent. of the deaths among clerks, bookkeepers, office assistants are caused by this disease. On the other hand, only 14 per cent. of the deaths among railway enginemen and trainmen and only 5.8 per cent. of deaths among coal miners are caused by consumption. If we remember that coal miners live and work under conditions which, presumably, are favorable to the development of tuberculosis, namely, in dark and often badly ventilated places, it becomes difficult to reconcile this low mortality with our preconceived views on the subject.

If we study this table according to age groups, other interesting facts are developed. Among clerks, bookkeepers and office assistants, 35 per cent. of all deaths over 15 years of age are caused by tuberculosis, and between ages 25 and 34, 51.2 per cent. of the deaths are due to this disease. Only 21.9 per cent. of the deaths among painters, paper-hangers and varnishers, all ages over 15, are due to tuberculosis, and at ages 25 to 34 only 42.9 per cent. of the deaths are caused by tuberculosis. Do these figures mean that resistance among painters, paper-hangers and varnishers is greater than among clerks at the younger ages, or are there occupational conditions which influence the mortality in the clerk group more than they do those in the painter group? If we study the age period 35 to 44 we find that tuberculosis kills off 346 painters out of every 1,000 painters who die at these ages, and that only 334 clerks, bookkeepers and office assistants die from tuberculosis out of 1,000 deaths in this occupation group and age period. What do these figures mean? Is the influence of occupation, particularly the influence of lead poisoning beginning to manifest itself among painters as they grow older and does a clerk who has passed age 25 show greater resistance to tuberculosis?

Studied from the standpoint of locality, more questions arise which interest and at the same time mystify life insurance

companies. I could cite statistics from various sections of the United States which would show marked differences in the death rates in various cities. For example: our colored death

TABLE 3.

PROPORTIONATE MORTALITY FROM **TUBERCULOSIS OF THE LUNGS** IN CERTAIN OCCUPATIONS BY AGE PERIOD—WHITE MALES.

METROPOLITAN LIFE INSURANCE COMPANY—INDUSTRIAL DEPARTMENT—MORTALITY EXPERIENCE—1911-1913.

OCCUPATION.	PER CENT. OF DEATHS IN AGE PERIOD DUE TO **TUBERCULOSIS OF THE LUNGS.**				
	AGE PERIOD.				
	All ages—15 and over.	25-34.	35-44.	45-54.	55-64.
All occupations—excluding retired	20.5	40.9	32.9	18.5	8.6
Clerks, bookkeepers and office assistants	35.0	51.2	33.4	21.6	8.8
Compositors and printers	34.1	49.8	39.1	23.9	15.8
Teamsters, drivers and chauffeurs	28.2	42.7	35.7	20.2	10.0
Saloon-keepers and bartenders	26.0	39.2	31.2	15.3	9.9
Machinists	25.0	44.8	30.4	18.9	9.7
Cigar makers and tobacco workers	24.1	44.9	41.1	25.6	11.4
Textile mill workers	22.0	47.5	37.7	18.0	8.9
Painters, paper-hangers and varnishers	21.9	42.9	34.6	19.6	11.3
Laborers	16.4	34.8	33.9	20.1	8.1
Blacksmiths	14.0	28.7	35.8	17.0	8.3
Railway enginemen and trainmen	14.0	14.7	24.9	13.8	7.4
Railway track and yard workers	11.1	27.2	21.1	10.2	5.1
Farmers and farm laborers	9.7	31.8	30.5	13.9	6.7
Coal miners	5.8	11.9	12.1	6.6	3.4

rate, all causes, is the same in Cincinnati as it is in Louisville. On the other hand, our death rate per hundred thousand from tuberculosis on colored lives is 375.4 in Louisville and 479.2 in Cincinnati. I have cited the above statistics, not with the intention of definitely establishing any hypothesis, but rather to elucidate the thought which I had in mind in the presentation of this paper. It is quite probable that other statistics may be quoted, which would negative any deductions drawn from the data herein contained.

Those of you who have been interested in the tuberculosis campaign will probably concede that there has been a change of attitude in the past few years with respect to the value of the campaign and the results obtained. I can recall how more than a decade ago we took as the slogan for our work: "Tuberculosis is not only curable, but preventable." Based upon the results obtained in the cure of tuberculosis we accepted as correct the belief that the conditions to effect a cure such as fresh air, proper and sufficient food, proper living conditions, etc., were necessary also to prevent tuberculosis. We have accepted these as fundamentals in our anti-tuberculosis work. Any anti-tuberculosis association, which has come into existence within the last ten years, has spent its funds and carried on its campaign largely along these lines. Only recently have we begun to question whether our foundations are built on sand or on solid rock. Do we really know the etiology of tuberculosis? Are we acquainted with the conditions under which the tubercle bacillus develops and thrives? Is our campaign against tuberculosis the proper and logical one that will lead to the final extinction of the disease? Do statistics and other facts indicate that we have made or are making headway? Are we convinced that our efforts to prevent spitting, to sterilize milk, to have working men employed under proper sanitary and hygienic conditions, to see that families are properly housed, are really the lines along which we ought to work in the future in the hope that the primary purpose of the tuberculosis campaign may be developed?

I have no wish to stand here to-day as a critic of the things that have been attempted since the anti-tuberculosis crusade was started, and yet we must realize that, unless we are willing to examine our work carefully and honestly, critics may arise from the outside who may condemn our efforts in no unmeasured terms. I need not recall to you at this time the fact that

there are those who doubt whether the reduction in the death rate from tuberculosis in the last ten years can be attributed to the efforts of the anti-tuberculosis movement. It is even claimed that similar reductions have taken place for a number of earlier decades and probably would have taken place without our efforts, in line with the general improvement in mortality. There are doubters who contend that infection through sputum, except in early childhood, is of rare occurrence, and that in fact most of us become infected during childhood and set up an immunity which protects us from reinfection. It seems quite clear from investigations and autopsies which have been made in many places that this theory has good ground for support. While it is true that there has been a reduction in the mortality, we have no data to indicate whether there are fewer cases of tuberculosis than there were ten years ago. Until we have morbidity statistics it will be impossible for us to say whether our campaign has been at all successful along preventive lines in reducing the numbers of individuals annually afflicted with the disease.

I think it is time for us to pause and consider why the results which have been obtained have not been larger. Even admitting that there has been a pronounced and gratifying reduction in the death rate, I have indicated above by the statistics submitted that there have been even more marked and greater reductions in death rates of other diseases. Can we consider these facts as they are and endeavor with the material at hand to formulate to our satisfaction the reasons for this difference so that we may possibly elaborate a program for the future.

If I may be permitted to express my own views, I will say that the causes which have most largely affected the comparatively slight results obtained are inherent in the disease itself. One of the great difficulties in the eradication of the disease lies in the fact that it is a chronic disease whose onset is slow and whose progress in most instances covers comparatively long periods of time. It is because of this chronicity that, notwithstanding all that has been written about phthisiophobia, real fear and horror of the disease have never taken possession of the great masses of the people. We have learned to accept the affliction of tuberculosis with a certain fatalism. Much of the early belief in the heredity of the disease still maintains, and, in fact, is being accentuated by the most recent researches

which lead to the belief that heredity does play a part, if not in the transmission of the disease at least in its development. I am convinced that if tuberculosis were an acute disease, whose onset was short and rapid, whose course was in most instances fatal within a comparatively short time, we would long since have found the means to prevent the disease, precisely as we have done with smallpox, yellow fever, Asiatic cholera, malaria and typhoid fever. I am not certain whether our slogan of proclaiming tuberculosis to be curable has not injured rather than benefited the cause. The very hopefulness of our attitude has tended to weaken efforts on the part of individuals and communities to adopt necessary prophylactic measures and to institute radical campaigns of prevention. Is it not, therefore, necessary for us at this time to reassemble our facts and determine whether with the information at hand we shall proceed along the lines which we have laid down, or whether it is not necessary for us to establish new criteria and new bases for future action?

If I may be permitted another personal expression of opinion, I would venture the suggestion that the weakness of our campaign is due to the fact that we have accepted certain premises which have not been scientifically and accurately demonstrated. Statistics have shown us that tuberculosis seems to thrive best where there are bad housing conditions, poor and inadequate food, overwork, bad light and bad ventilation, and yet as a matter of fact there are no reliable scientific data to establish any of these beliefs. The illustration which I have given above of the small proportion of deaths from tuberculosis among coal miners, who frequently work under a number of the bad conditions just mentioned, indicates rather clearly that most careful investigations are still necessary to determine whether our theories are correct. The peculiar variations which I have shown in the Metropolitan experience with respect to age, sex, color and locality all indicate that we are only at the beginning of accurate scientific investigations regarding the etiology of tuberculosis. What is needed is an exhaustive, comprehensive and intensive study of the many complicated and complex factors which are involved in the persistence of this disease.

If our present methods are inadequate, have we any data which point the way for the future? I think the facts are so clear that he who runs may read. If we compare the typhoid

death rate in Cincinnati with that of other cities in the same geographical area we find marked differences. The typhoid fever death rate in Cincinnati to-day is among the lowest in the United States. The Metropolitan experience for 1913-1914 shows only one colored and ten white deaths. The reason for this is obvious. Ohio River water had long been known to be the source of infection. Cincinnati deliberately spent millions of dollars to provide its citizens with a proper water supply. The results were immediate and conclusive. If the same concerted and deliberate action had been taken with respect to tuberculosis, if the city of Cincinnati had been prepared to expend equally large sums in a campaign against tuberculosis after an intensive study of the causes which produce it, it is no exaggeration to say that the tuberculosis death rate per hundred thousand would to-day no longer be expressed in three figures.

There are other apt illustrations to show us the course we must pursue. At the meeting of the American Public Health Association held in Rochester a few weeks ago, Dr. Gorgas detailed the campaign which had been carried on in Cuba to eradicate yellow fever. He described the original belief that yellow fever was a dirt disease, and told of the incessant campaign waged in every part of Cuba to clean up. No effort was spared to put the island in sanitary condition, and yet the campaign was a failure so far as the prevention of yellow fever was concerned. Only after the discovery of the cause of infection, the yellow fever mosquito (stegomya fasciata), which, as you know, was the result of a series of most elaborate researches and studies, was the correct method of preventing the disease found and applied. It is of importance to point out here some of the things that were done by General Gorgas, with practically the power of a Czar and with practically unlimited financial resources. Among other things, he established not only a marine quarantine, but a land quarantine as well. No individuals were allowed to enter what were practically segregated cities either from the land or from the sea excepting after careful inspection and examination. A thoroughly organized campaign to exterminate the mosquito was developed. The result after fourteen years, as Dr. Gorgas put it, is that yellow fever disappeared from the island.

Will you endeavor to visualize with me another island, preferably smaller than Cuba, in which an attempt would be

made to get at the root of the tuberculosis problem in a manner similar to the one in which General Gorgas handled yellow fever. I can conceive of such an island being placed in charge of a sanitarian of the Gorgas type and given almost autocratic power. He would not lack necessary funds to carry on the task assigned him. Such a man with competent assistants would carry out a well-defined policy of experimental research to determine not merely the medical and bacteriological causes which produce tuberculosis, but would supplement such research with exhaustive studies into the social causes which enable the disease to develop and persist. When these had been determined, our sanitarian would use the unlimited powers which had been placed at his disposal to see to it that there were no infractions or violations of any laws, rules or ordinances which he might enact tending toward the elimination of conditions causing infection.

Fantastic as the idea may appear to us at the present time with our limited vision, I can conceive that on this mythical island every resident, irrespective of his state of health would be subjected to a rigid medical examination. A careful record would be kept of his social and medical history. He would be re-examined periodically to determine whether any changes had taken place in his physical condition. If his family history showed hereditary tendencies to tuberculosis, such examinations would be conducted at more frequent intervals. Each resident of this island would be studied with respect to age, sex and occupation. The conditions under which he lived and worked would be carefully recorded. The influences which these conditions might have upon his state of health would be determined. On this ideal island no one would be permitted to enter who could not conform to the standards set up by a board of medical experts and students of social problems. A land and water quarantine, similar to the one established by General Gorgas in Cuba, would be an accepted fact on this ideal island.

These things would, however, be only preliminaries. Our sanitarian would undoubtedly provide for a careful inspection of all the food supplies used by the people who lived there. Milk inspection would not be a perfunctory act. The prevention of spitting would be more than an unenforced statute. Inventors would be asked to design practicable receptacles for sputum, and the furnishing of these in sufficient number and

in convenient places would be as much a duty of the authorities as a good water supply, sewers or comfort stations.

Nor would preventive measures end here. Every case of tuberculosis that was found would be carefully studied to determine the conditions under which it arose. Sanatorium treatment would be given to the early cases. The people would be educated as a matter of public and personal duty, to bring to the notice of the authorities any symptoms which might indicate the beginnings of a tuberculous infection. Adequate hospital facilities would be provided for advanced cases. For those whose condition was hopeless and for whom segregation was required, opportunity would be given to pass their remaining days in modern institutions with attractive surroundings, in which every consideration would be given to their care and comfort.

It is only necessary to add that in this mythical island every phase of modern public, personal and industrial hygiene would be developed. In particular the influence of occupation on health and as a factor in producing tuberculosis would receive the closest attention. In time the authorities would probably ascertain, by careful and accurate experiment, what influence housing, air and ventilation have in the spread of tuberculosis, and whether race, wages, nationality, sex, age, occupation, alcohol, venereal disease, and heredity play important or negligible parts.

I think I have said enough to indicate to you the thought I have in mind, namely, that we shall not begin to handle the tuberculosis problem effectively until we institute methods similar to those that were employed in Cuba and in the Phillipines. These methods involve (1) accurate and painstaking scientific research along both medical and social lines, (2) the application of the results of such research to isolated and if necessary segregated groups of individuals who may be kept under constant observation, (3) authority to enfore regulation, and (4) adequate finances. The science of medicine has reached its present highly developed state by reason of years of endless and painstaking research. The profession of chemistry would still be in the unenlightened period of alchemy had it not been for the laboratories devoted to scientific investigation. Other professions and arts tell the same story. Medical research has proven beyond peradventure that tuberculosis is a specific infection of the tubercle bacillus. How it

thrives and develops is in part known and in part assumed. If the disease is ever to be eradicated, we must definitely know facts and dispense with assumptions. That this has been done with other diseases is too well known to require further comment. Precisely the same course as has been pursued with these diseases must be followed with tuberculosis.

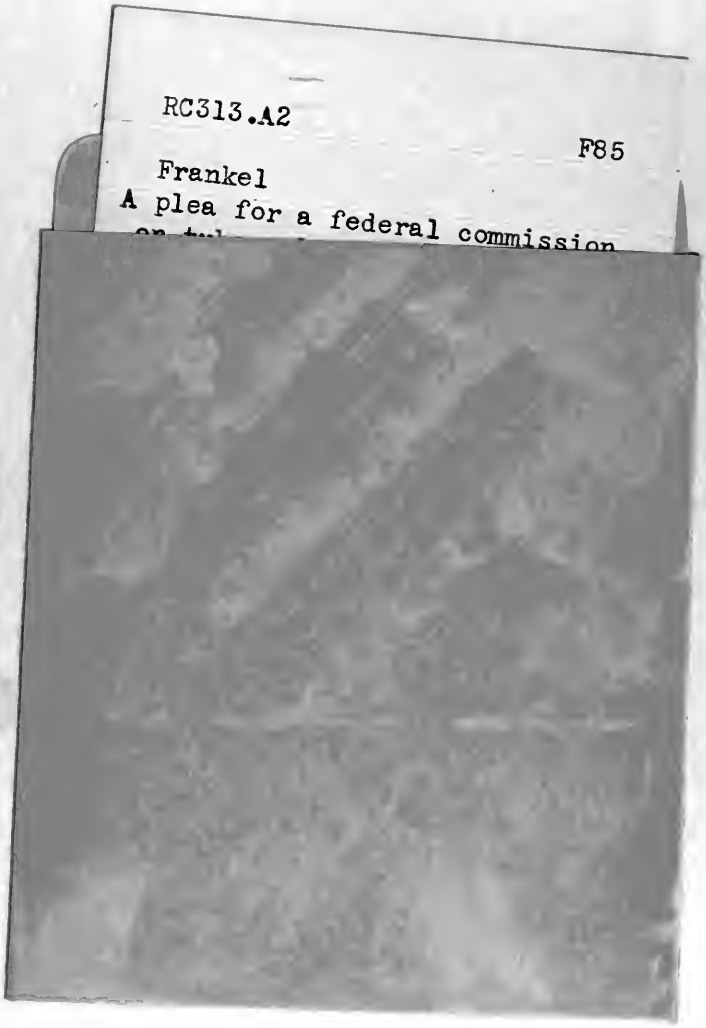
The question may be asked, "But what of the cost?" I reply, that we may not consider cost with respect to a disease which to-day causes more deaths than any other. As it is, according to the statement of the National Association for the Study and Prevention of Tuberculosis, there was spent last year over $20,000,000 in the campaign against tuberculosis in the United States. This included the amount spent for institutional care and treatment. In fact, over $18,000,000 was spent for these purposes, largely curative in nature. Less than $2,000,000 was spent in the entire preventive campaign, including so far as is known all educational movements and all research work. This is a paltry sum when the extent of the disease is considered. I have no doubt that if we could spend $20,000,000 in a determined, enlightened and comprehensive plan, such as I have outlined above, we could look forward with confidence in the next decade to seeing as marked a reduction in the mortality of tuberculosis as we have seen in smallpox, yellow fever, etc.

You will ask, "Is not this work for the great insurance companies of the United States?" My reply would be, "Yes, if money were the only need." I can conceive of no better purpose to use insurance surplus, and, if necessary, even dividends, than for the eradication of tuberculosis. Money, however, is only one great requisite; the other is authority. An experiment such as I have suggested will not come within the scope of private enterprise. It will be distinctly a function of the Federal Government. Only the latter would have the sovereign power, not only to inaugurate such a campaign, but to enforce the social and medical conditions under which such an experiment should be made.

In conclusion, let me suggest for your consideration the adoption of a resolution calling upon the Congress of the United States to authorize the President to appoint a Federal Commission on Tuberculosis composed of eminent specialists in the medical, economic and social phases of the subject. Such a commission would have to be vested with sufficient power

and authority and be given ample financial support to make an intensive investigation into the etiology of tuberculosis. I am confident that the report of such a commission would show definitely and unmistakably the path along which the future campaign against tuberculosis must proceed, if we are ever to eradicate the disease.

[*Since the presentation of this paper, the recommendation contained in the last paragraph has been adopted by resolution of the Mississippi Valley Tuberculosis Conference, the South Atlantic Tuberculosis Conference, the New England Tuberculosis Conference and the North Atlantic Tuberculosis Conference.*]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A plea for a federal commission